

Mineral Industry Surveys

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ZINC IN JUNE 1999

Domestic mine production in June, expressed in zinc content of ore, was estimated to be about 62,000 metric tons; mine production data were not available at the time of publication. Smelter production in June was the same as in May and was more than 4% lower than a year ago. Apparent consumption was nearly 2% lower than in May, but was more than 5% higher than in June 1998.

The *Platt's Metals Week* monthly average composite price for North American Special High Grade zinc declined by nearly 4% to 50.13 cents per pound in June.

Atna Resources Ltd. and Grayd Resource Corp. have agreed, subject to regulatory approval, to give Atna an option to earn a 51% interest in Grayd's Dry Creek and Anderson Mountain properties, located 28 kilometers (km) apart, in the Bonfield District, about 90 km south of Fairbanks, AK. Atna already has an 11% equity interest in Grayd. To earn an additional 40%, Atna must spend \$3.3 million on exploration over 5 years. The company has already committed about \$1 million for this year's program, which will consist of about 3,000 meters of diamond drilling. Together, the Dry Creek and Anderson properties measure about 7,000 hectares (Mining Record, 1999).

For its future New Burgin Mine, Chief Consolidated Mining Co. wants to appropriate water from the State of Utah and then desalinate it; the treated water would then be used by the new mine and the salt sold on the open market. The move is aimed at preventing billions of gallons of saline fluids from interfering with attempts to revive the former Burgin Mine. If the Utah Government approves the plan, U.S. Filter will begin a feasibility study for the \$100-million water treatment plant. The New Burgin silver-lead-zinc mine, 112 km southwest of Salt Lake City, UT, is owned by Tintic Utah Metal LLC, in which Chief Consolidated has a 75% interest and Korea Zinc Co. Ltd. holds the remaining 25%. Ore reserves amount to 1 million tons grading 21% lead, 6.7% zinc, and 468 grams per ton (g/t) silver (Northern Miner, 1999c).

Cominco Ltd. reported a net loss of \$8 million in the quarter

ending on June 30. The net loss for the first 6 months of 1999 was \$3 million. The main reasons for the loss in the second quarter were lower earnings from the Trail smelter and refinery, and the two copper operations, and the seasonally low volume of sales from the Red Dog and Polaris mines. Red Dog's zinc concentrate production in the second quarter of 1999 was 452,700 tons, 18% higher than during the same period in 1998. The increased production was due mainly to the production rate increase (PRI) project, which began producing at the design capacity in the fourth quarter of 1998. Because shipments of Red Dog concentrate can be made only during the short summer shipping season, the full effect of the increased production from the PRI project will not be reflected in earnings until the fourth quarter (Cominco, 1999).

Cominco announced that it intends to process its existing 215,000 tons of stockpiled lead smelter slag at the Trail, BC, smelter by refurbishing and restarting its No. 2 slag fuming furnace before yearend, at a cost of \$9 million. The slag stockpile is estimated to contain 35,000 tons of zinc as well as significant quantities of indium and germanium. Processing of the stockpile from the slag fuming furnace start up should be completed in about 4 years (Cominco News, June 1, 1999, Trail to increase processing of existing stockpiled material, sent June 1, 1999, from e-mail mds@mds.prwire.com).

Labor contract talks continued between management and the unions at Falconbridge Ltd.'s Kidd Creek metallurgical division in Timmins, Ontario. Kidd's operations include a mill, copper smelter and refinery, zinc plant, a cadmium plant, a dust treatment plant that recovers indium, copper, and zinc, and a sulfuric acid plant. The remaining issues to be resolved pertained to layoff and recall procedures and job promotions. This was the first collective bargaining between management of the copper and zinc smelter and refinery and workers who last year became members of the Canadian Auto Workers Union. The deadline for agreement had been postponed to July 8. Workers at the Kidd Creek mining division are not unionized (Metal Bulletin, 1999a).

Canadian partners, Atna Resources Ltd. (40%) and Expatriate Resources Ltd. (60%), are considering alternative methods to mining and processing of the Wolverine deposit in Yukon Territory. The high percentage of selenium in concentrate (0.15 to 0.43) creates problems during smelting and refining, because it is not easily separated from the metal or sulfur products. Consequently, a new metallurgical approach is being considered that would enable direct production of metal rather than concentrate. One such process could involve leaching, where higher capital and operating cost could be offset by gains in metal recoveries. The study to find the best method will cost about \$200,000 and take between 6 and 9 months. The Wolverine resource is estimated at 6.2 million tons grading 12.7% zinc, 1.6% lead, 1.3% copper, 370 g/t silver, and a small amount of gold (Northern Miner, 1999a).

Because of poor ground conditions, Boliden Ltd. suspended operations at the Myra Falls Mine for 3 months, starting in mid-December 1998. The mine, measuring about 21 km², is located in Strathcona Provincial Park, BC. During the suspension, 1,330 meters of drifts were rehabilitated using a new, tightly spaced rock-bolting pattern, along with wire mesh and shotcrete. In addition, a 330-meter underground development was completed and about 175,000 tons of backfill was carried out. To ease retrieval of ore from production areas and transport of equipment, a 2.7-km ramp from the surface down to the Battle and Gap zones is being proposed. Total reserves at Myra Falls are reported to be 5.3 million tons grading 7.7% zinc, 1.6% copper, 0.7% lead, 56 g/t silver, and 2 g/t gold. The potential for expanding reserves is excellent and exploration continues at a cost of between \$2 million and \$4 million per year. In 1998, the mine produced more than 1 million tons of ore, resulting in 95,450 tons of zinc concentrate containing 54.3% zinc, plus 47.4 g/t per ton silver and 2.2 g/t gold. Recoveries for 1998 were 88.8% for zinc, 87.3% for copper, 65% for silver, and 39.4% for gold. Planned production for 1999 amounts to 839 million tons of ore grading 6.5% zinc, 1.5% copper, plus silver and gold (Northern Miner, 1999b).

Noranda Inc. is earning a 70% interest in the Caber property from Southern Africa Minerals Ltd. for preparing a feasibility study of mining the massive sulfide deposit, 35 km west of Matagami, Quebec. Ore would be trucked to the mill at Matagami and possibly mixed with ore from Noranda's nearly completed Bell-Allard copper-zinc mine. Total resources are estimated to be 800,000 tons grading 10.1% zinc, 0.6% copper, 11.3 g/t silver, and 0.14 g/t gold (Northern Miner, 1999d).

Empresa Minera del Centro del Peru S.A. (Centromin) decided to sell its remaining 25% interest in Peru's largest zinc producer, Empresa Minera Iscaycruz S.A. Glencore International AG of Switzerland currently has a 45% direct interest and 30% indirect stake in Iscaycruz through Perubar S.A. By the beginning of July, Centromin was to have established the value of its 25% stake in

the enterprise and enumerate the conditions of the tender. According to industry sources, the only logical bidder is Glencore, which already owns 75% of the mine. The mine produced 97,900 tons of zinc in concentrate in 1998, more than 12% higher than in 1997. Output in the first 4 months of 1999 reached 34,580 tons, continuing the upward trend (Mining Journal, 1999).

Doe Run Co., of the United States, will not exercise its option to buy a 30% interest in Peru's Minera Paragsha S.A. As the owner of the La Oroya lead and zinc smelter and refinery, Doe Run had the right to become a minority owner in the mining complex, located 200 kilometers northeast of Lima. Because the state-owned Centromin workers likewise declined to exercise their option to buy a 10% stake in the company, Compañía Minera Volcán S.A. could become the sole owner of Paragsha. Before the purchase of a controlling interest by Volcán on May 28, the Paragsha mining complex was known under the name of Cerro de Pasco. Paragsha comprises one underground and one open pit mine, and two concentrators. The mine produced 210,309 t of zinc in concentrates, 72,488 t of lead in concentrates, and 227 t of silver in 1998 (Metal Bulletin, 1999b). Reserves were reported to be 26 Mt grading 8.41% zinc, 2.92% lead, and 132 g/t silver (Metal Bulletin, 1999c).

Western Metals Ltd. of Australia is investigating the possibility of using electrowinning technology to produce zinc cathode from the Hellyer Mine tailings, when the mine ceases operation, probably in 2001. The tailings amount to about 11 million tons grading 2.8% zinc, 3% lead, plus copper, silver, and gold. The production could amount to 24,000 tons of zinc cathode, 500 tons of copper, 62 tons of silver, and 1.1 tons of gold (Metal Bulletin, 1999d).

References Cited

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- 1999d, Western Metals plans to treat Hellyer tailings: Metal Bulletin, no. 8382, June 7, p. 7.
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- 1999b, Boliden shows off revamped Myra Falls: Northern Miner, v. 85, no. 18, June 28, p. B1-B2.
- 1999c, Drilling program attempts to extend known ore zone: Northern Miner, v. 85, no. 16, June 14, p. B7.
- 1999d, Noranda boosts Caber resources: Northern Miner, v. 85, no. 15, June 7-13, p. 1-2.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1998	1999			
	January- December	April	May	June	January- June
Production:					
Mine, zinc content of concentrate	734,000 r/	67,000	61,700 r/	62,000 e/	379,000
Mine, recoverable zinc	698,000 r/	63,900	58,700 r/	59,000 e/	361,000
Smelter, refined zinc	380,000	30,100	30,100	30,100	180,000
Oxide (gross weight)	153,000	11,800	11,900 r/	8,660	69,100
Consumption:					
Refined zinc, reported	647,000 r/	40,300	42,500 r/	46,400	259,000
Ores e/ (zinc content)	1,020 r/	85 r/	85 r/	85	510
Zinc-base scrap e/ (zinc content)	225,000 r/	18,800 r/	18,800 r/	18,800	113,000
Copper-base scrap e/ (zinc content)	200,000 r/	16,700 r/	16,700 r/	16,700	100,000
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240 r/	103 r/	103 r/	103	618
Total e/	1,070,000 r/	76,000 r/	78,100 r/	82,100	472,000
Apparent consumption, metal 2/	1,290,000	115,000 r/	107,000 r/	105,000 3/	665,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	9,060	9,380	9,380	9,380	XX
Consumer 5/	69,900	62,400	59,300 r/	57,600	XX
Merchant	13,300	9,450	9,340	9,340	XX
Total	92,300	81,200	78,000 r/	76,300	XX
Shipments of zinc metal from Government stockpile	26,000	1,650	736	800	10,900
Imports for consumption:					
Refined (slab) zinc	879,000	83,400	72,600	NA	399,000 6/
Oxide (gross weight)	58,900	5,080	4,920	NA	27,300 6/
Ore and concentrate (zinc content)	46,300	274	12,800	NA	38,200 6/
Exports:					
Refined (slab) zinc	2,330	52	114	NA	355 6/
Oxide (gross weight)	6,210	579	514	NA	2,900 6/
Ore and concentrate (zinc content)	552,000	12,800	1,440	NA	30,300 6/
Waste and scrap (gross weight)	35,000	2,600	3,110	NA	12,800 6/
Price:					
London Metal Exchange, average, dollars per metric ton	1,024.11	1,018.60	1,040.33	1,000.11	1,006.32
Platt's Metals Week North American Special High Grade, average, cents per pound	51.43	50.66	52.09	50.13	50.35

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through May only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1998:				
June	10,200	31,500	33,400	8,380
July	8,380	32,100	32,000	8,560
August	8,560	30,300	29,300	9,540
September	9,540	30,200	30,100	9,640
October	9,640	31,700	31,400	9,930
November	9,930	29,200	29,900	9,240
December	9,240	32,000	32,200	9,060
Year total	XX	380,000	381,000	XX
1999:				
January	9,060	30,200	29,700	9,590
February	9,590	27,700	28,900	8,360
March	8,360	31,900	30,100	10,200
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	30,100	30,100	9,380
January-June	XX	180,000	180,000	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1998:				
June	3,450	12,200	12,300	3,370
July	3,370	12,500	12,500	3,400
August	3,400	12,600	12,500	3,480
September	3,480	13,600	13,400	3,640
October	3,640	13,400	13,100	3,940
November	3,940	13,300	12,700	4,530
December	4,530	12,900	12,400	5,060
Year total	XX	153,000	153,000	XX
1999:				
January	5,060	12,600	12,900	4,810
February	4,810	12,400	12,900	4,270
March	4,270	11,800	11,800	4,270
April	4,270	11,800	12,400 r/	3,680 r/
May r/	3,680	11,900	11,900	3,640
June	3,640	8,660	8,990	3,310
January-June	XX	69,100	70,800	XX

r/ Revised. XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE
SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1998	1999			
	January- December	April	May	June	January- June
Agriculture	2,540	143	124	124	819
Ceramics	7,590	700 r/	612 r/	620	3,720
Chemicals	W	2,650 r/	2,650 r/	2,280	15,200
Paints	6,960	595 r/	573 r/	311	3,180
Photocopying	W	256	256	256	1,560
Rubber	101,000	7,890 r/	7,560 r/	5,280	45,600
Other	35,000 r/	129 r/	128 r/	128	767
Total	153,000	12,400 r/	11,900 r/	8,990	70,800

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1998	1999		
	January- December	April	May r/	June 2/ January- June
Galvanizing:				
Sheet and strip	528,000 r/	47,500 r/	43,000	41,500
Other	177,000 r/	17,900 r/	15,700	14,600
Total	706,000 r/	65,400 r/	58,700	56,100
Brass and bronze	178,000 r/	16,800 r/	14,900	15,200
Zinc-base alloy	246,000 r/	20,700	19,000	20,100
Other uses 3/	161,000 r/	11,600 r/	14,000	13,700
Grand total	1,290,000	115,000 r/	107,000	105,000

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American	LME cash	
	¢/lb.	¢/lb.	\$/mt
1998:			
June	51.05	45.79	1,009.45
July	52.71	47.17	1,039.82
August	52.15	46.69	1,029.43
September	50.63	45.36	1,000.00
October	47.91	42.64	940.13
November	48.99	43.85	966.83
December	48.47	43.49	958.82
January-December	51.43	46.45	1,024.11
1999:			
January	47.06	42.29	932.34
February	50.90	46.13	1,016.90
March	51.27	46.70	1,029.61
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
January-June	50.35	45.65	1,006.32

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1998		1999 2/			
	Quantity (metric tons)	Value (thousands)	May		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	2,330	\$2,750	114	\$130	355	\$491
Ore and concentrate (zinc content)	552,000	248,000	1,440	973	30,300	20,700
Waste and scrap (gross weight)	35,000	27,500	3,110	3,850	12,800	12,200
Powders, flakes, and dust (zinc content)	5,530	10,500	588	1,910	2,070	4,800
Oxide (gross weight)	6,210	11,300	514	947	2,900	4,850
Chloride (gross weight)	1,940	1,290	112	110	1,160	862
Sulfate (gross weight)	4,380	2,780	452	270	2,220	1,350
Compounds, other (gross weight)	305	1,170	16	52	160	445

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1998		1999 2/			
	Quantity (metric tons)	Value (thousands)	May		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	879,000	\$956,000	72,600	\$76,500	399,000	\$413,000
Ore and concentrate (zinc content)	46,300	23,700	12,800	7,660	38,200	21,300
Waste and scrap (gross weight)	29,200	15,700	2,280	972	9,110	4,260
Powders, flakes, and dust (zinc content)	17,600	34,000	1,600	2,990	8,170	13,700
Oxide (gross weight)	58,900	60,100	4,920	4,970	27,300	27,500
Chloride (gross weight)	1,570	1,520	153	134	837	750
Sulfate (gross weight)	10,400	5,940	787	429	4,770	3,010
Compounds, other (gross weight)	1,260	1,730	116	104	533	558

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1998:			
June	217,000	1,010	216,000
July	216,000	2,050	214,000
August	214,000	--	214,000
September	214,000	7,290	207,000
October	207,000	1,610	205,000
November	205,000	1,200	204,000
December	204,000	5,100	199,000
Year total	XX	26,000	XX
1999:			
January	199,000	2,150	197,000
February	197,000	2,750	194,000
March	194,000	2,800	191,000
April	191,000	1,650	190,000
May	190,000	736	189,000
June	189,000	800	188,000
January-June	XX	10,900	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1998	1999 2/		1998	1999 2/	
		May	Year to date		May	Year to date
Ore and concentrate (zinc content):						
Mexico	17,100	1,100	6,610	17,100	1,100	6,610
Peru	26,900	4,060	16,500	26,100	3,790	16,100
South Africa, Republic of	--	7,900	7,900	--	7,900	7,900
Other	3,270	--	7,540	3,130	--	7,540
Total	47,300	13,100	38,600	46,300	12,800	38,200
Blocks, pigs, or slab:						
Brazil	6,750	5,000	11,800	6,750	5,000	11,800
Canada	504,000	42,300	226,000	505,000	42,300	226,000
China	52,800	300	22,900	52,800	300	23,000
Finland	4,580	1,500	9,500	4,580	1,500	9,500
Kazakhstan	27,000	--	9,050	27,000	--	9,050
Korea, Republic of	42,600	3,920	24,900	51,900	3,920	24,900
Mexico	78,000	10,200	36,700	78,000	10,200	36,700
Peru	47,800	2,500	28,600	47,800	2,500	28,600
Poland	16,100	5,060	9,370	16,100	5,060	9,370
Russia	16,400	368	6,320	16,400	368	6,320
South Africa	3,340	1,500	2,500	3,340	1,500	2,500
Spain	25,700	--	--	25,700	--	--
Other	41,000 r/	57	11,300	43,600 r/	57	11,300
Total	866,000	72,600	399,000	879,000	72,600	399,000
Dross, ashes, & fume (content)	21,100	1,670	9,240	21,100	1,670	9,240
Grand total	934,000	87,400	447,000	946,000	87,100	447,000
Oxide (gross weight):						
Canada	33,000	2,490	15,400	33,000	2,490	15,400
China	1,890	340	1,130	1,890	340	1,130
Mexico	18,900	1,480	7,930	18,900	1,480	7,930
Netherlands	2,290	254	1,420	2,290	254	1,420
Other	2,890	357	1,410	2,880	357	1,410
Total	58,900	4,920	27,300	58,900	4,920	27,300
Other (gross weight):						
Waste and scrap	29,200	2,280	9,110	29,200	2,280	9,110
Sheets	16,200	1,890	8,200	16,900	1,890	8,200
Powders, flakes, and dust (zinc content)	17,600	1,600	8,170	17,600	1,600	8,170

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.